

CLAIMS

Claim 1: An information providing system comprising:

a sound emission device, adapted to emit, as a sound wave, identification information modulated to a sound signal;

an identification information resolution server that is connected to an information communication network and includes a mapping table in which the identification information, valid time information, which indicates a range of valid time of the identification information, and address information of a content corresponding to the identification information are stored to be associated with each other; and

a mobile terminal device that includes a sound pickup unit, adapted to pick up the sound wave emitted from the sound emission device, a demodulation unit, adapted to demodulate the identification information from the picked up sound wave, an identification information resolution unit, adapted to transmit the demodulated identification information to the identification information resolution server and thus acquire the address information, and a network access unit, adapted to access the content by using the acquired address information, wherein

the identification information resolution server receives the identification information from the mobile terminal device, refers to the mapping table by using time information and the identification information and returns the address information of a corresponding content to the mobile terminal device when the time information is within the range of valid time indicated by the valid time information; and

the identification information resolution server is adapted to reply to indicate that the identification information is invalid when the time information is out of the range of valid time indicated by the valid time information.

Claim 2: The information providing system according to claim 1, wherein

the sound emission device is a broadcasting receiving device,

the sound wave is transmitted from a broadcasting station, as a sound wave in a broadcasting program or promo, and

the identification information resolution server identifies address

information for accessing a content relating to the program or promo, based on the received identification information.

Claim 3: The information providing system according to claim 1, wherein the time information indicates at least one of time at which the identification information resolution server receives the identification information, time at which the sound pickup unit of the mobile terminal device picks up the sound wave, time at which the demodulation unit of the mobile terminal device demodulates the identification information and time at which the identification information resolution unit of the mobile terminal device transmits the identification information to the identification information resolution server.

Claim 4: An identification information resolution server comprising:
 a reception unit, adapted to receive identification information through an information communication network from a mobile terminal device that is adapted to pick up a sound wave including the identification information and demodulate the identification information from the sound wave, the identification information being modulated to a sound signal;
 a storage unit storing therein a mapping table in which the identification information, valid time information, which indicates a range of valid time of the identification information, and address information of a content corresponding to the identification information are stored to be associated with each other; and
the identification server being adapted to read out time information indicating a time;
and further comprising
 an identification information resolution section, adapted to refer to the mapping table by using the time information and the identification information received by the reception unit and return the address information of a corresponding content to the mobile terminal device when the time information is within the range of valid time indicated by the valid time information; and to reply to indicate that the identification information is invalid when the time information is out of range of the valid time indicated by the valid time information.

Claim 5: An identification information resolution server computer program

product comprising

code for implementing, when executed by a processor, a reception unit, adapted to receive identification information through an information communication network from a mobile terminal device that is adapted to pick up a sound wave including the identification information and demodulate the identification information from the sound wave, the identification information being modulated to a sound signal;

a storage unit storing therein a mapping table in which the identification information, valid time information, which indicates a range of valid time of the identification information, and address information of a content corresponding to the identification information are stored to be associated with each other;

an identification information resolution section, adapted to refer to the mapping table by using the time information and the identification information received by the reception unit and return the address information of a corresponding content to the mobile terminal device when the time information is within the range of valid time indicated by the valid time information.

~~Claim 5: An information providing system comprising:~~

~~a sound emission device, adapted to emit, as a sound wave, identification information modulated to a sound signal;~~

~~an identification information resolution server that is connected to an information communication network and includes a mapping table in which the identification information and address information of a content corresponding to the identification information are stored to be associated with each other; and~~

~~a mobile terminal device that includes a sound pickup unit, adapted to pick up the sound wave emitted from the sound emission device, a demodulation unit, adapted to demodulate the identification information from the picked up sound wave, an identification information resolution unit, adapted to transmit the demodulated identification information to the identification information resolution server and thus acquire the address information, and a network access unit, adapted to access the content by using the acquired address information, wherein~~

~~the demodulation unit of the mobile terminal device further extracts time information from the picked up sound wave or the demodulated identification information, and~~

~~the identification information resolution unit of the mobile terminal device determines whether the identification information is valid or not based on the extracted time information, and transmits the identification information to the identification information resolution server when it is determined that the identification information is valid.~~

~~Claim 6: A mobile terminal device comprising:~~

~~a sound pickup unit, adapted to pick up a sound wave emitted from a sound emission device;~~

~~a demodulation unit, adapted to demodulate identification information from the picked up sound wave;~~

~~an identification information resolution unit, adapted to transmit the demodulated identification information to an identification information resolution server and thus acquire address information; and~~

~~a network access unit, adapted to access a content corresponding to the identification information by using the acquired address information, wherein~~

~~the demodulation unit further extracts time information from the picked up sound wave or the demodulated identification information, and~~

~~the identification information resolution unit determines whether the identification information is valid or not based on the extracted time information, and transmits the identification information to the identification information resolution server when it is determined that the identification information is valid.~~